



# 830

## BODY MOUNTED COUPLER ASSEMBLY INSTRUCTIONS

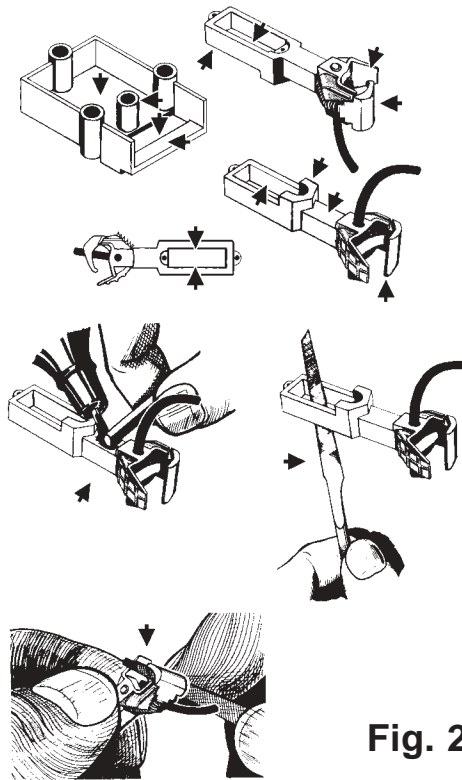
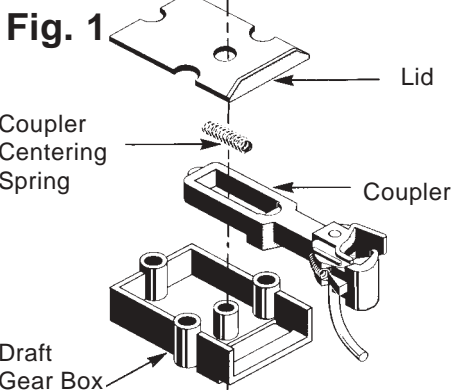
**Package contains:** 2 ea. couplers, 2 ea. draft gear boxes, 2 ea. draft gear box lids, 3 ea. centering springs, 1 ea. knuckle springs, 4 ea. 2-56 screws, and 4 ea. 2-56 hex nuts.

**Please carefully read through the instructions and review the illustrations completely before proceeding.**

The Kadee® #830 "G" scale Coupler is a centerset coupler with a wide draft gear box designed to be body mounted. Except for the USA Trains® "Ultimate Series" freight cars alterations might be required to the car and/or draft gear box or, in some cases, the building of a platform will be necessary. It is highly recommended for you to use our "G" scale #880 Coupler Height Gauge to determine the mounting surface height and the correct coupler height.



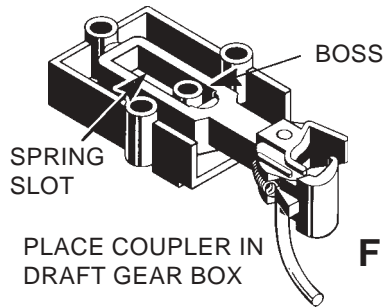
Cars which measure more than 2 1/2" from the truck kingpin to the end of car, (as with some passenger cars) must be run on track larger than 4 foot diameter, otherwise they will not back through the curves with the couplers in the "delayed" position. If more coupler side swing is needed, the gear box can be modified as shown in Fig.11. If still more side swing is required, our #883 Flex Bracket or our #838 Coupler Package (#830 Coupler and a #883 Flex Bracket together) can be used where the space allows. The flex bracket allows the entire gear box to pivot and re-center giving the coupler additional swing. If there is not enough clearance room for the #830 draft gear box and if you still wish to have a body mounted coupler then you might be able to use our #789 or #835 center set couplers that have narrower draft gear boxes. These, however, do not have as wide of a coupler swing as the #830 coupler and would work better on the shorter cars. The other alternative is to use truck mounted couplers and our most commonly used truck mounted "G" scale coupler is the #831.



**Fig. 2**

### PRE-ASSEMBLY:

1. **IMPORTANT:** Before assembling couplers, remove any flash, burrs, or rough spots (see arrows) with a fine file or an X-acto® knife to assure freedom of movement after the coupler is assembled.



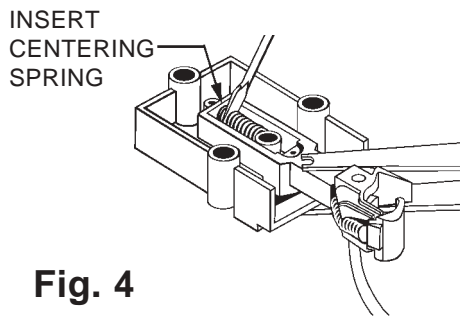
**Fig. 3**

2. As with all Kadee® Magne-Matic® Couplers use #231 Greas-em dry graphite lubricant in the draft gear box. The Greas-em's dry graphite will not attract the dirt and dust that gums up the inside of couplers like oil, grease, or other lubricants.

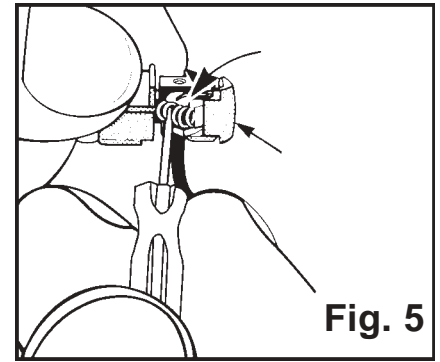
3. Buff the friction bearing surfaces marked by arrows in Fig.2 with Grease-em. DO NOT skip these steps they are very important for smooth, trouble-free coupler performance.

### ASSEMBLY:

1. Place coupler into draft gear box as shown in Fig.3. Add a little more Greas-em and work coupler back and forth.



**Fig. 4**



**Fig. 5**

2. Hold the coupler in place (you can hold it with the Kadee® #1020 tweezers) and install centering spring into the spring slot using a small screwdriver wedged between the end coils (Fig.4). Make sure that both ends of the spring are flat against the inside of the slot ends.

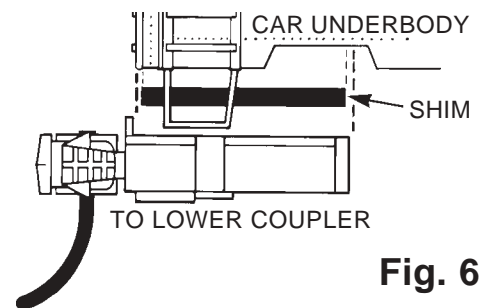
3. Place the lid on the draft gear box (slip the tweezers out) and snap it down. The lid will now hold the assembly together. Test the centering action by flicking the coupler back and forth. If the coupler does not work freely and snap back to center position, take the assembled coupler apart and make sure the spring is properly set in place and that there is no flash, burrs, or foreign material inside the coupler box.

4. Our coupler knuckle springs are factory installed. If one should come out during mounting or operational use, replace as follows: Insert small screwdriver blade between coils at one end of spring, then place other end of spring over either of the cone-shaped projections in the knuckle spring slot. Compress spring until other end can be slipped over opposite cone Fig.5. Use only Kadee® #860 "G" scale knuckle springs (one extra in package). They are designed for this purpose and any substitutions will not allow the coupler to work properly.

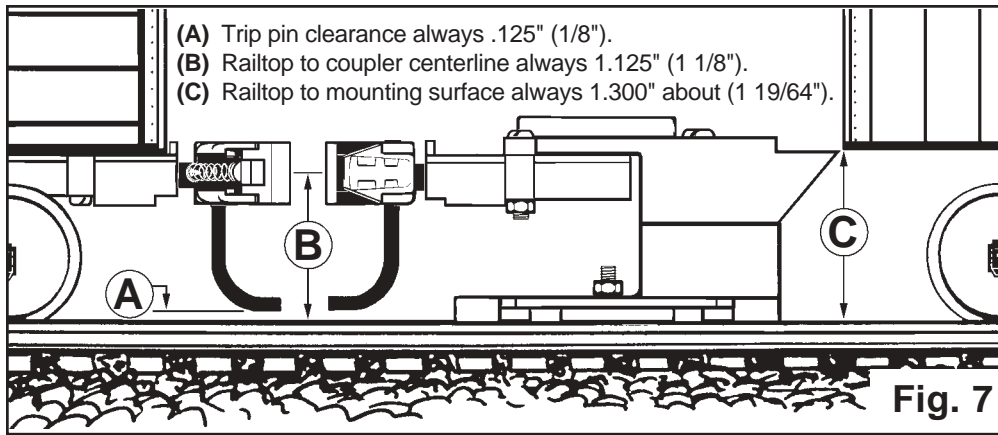
### MOUNTING:

1. Having all of your couplers mounted at the same height is necessary for reliable coupler performance and will permit standardization of your rolling stock and interchange of equipment on different model railroads. For our "G" scale couplers we recommend a mounting height of 1.125" (1 1/8") measured from the top of rail to the center of coupler Fig.7. Our #880 "G" Scale Coupler Height Gauge will assist in faster more accurate coupler mounting. It is designed to give you the correct coupler and mounting surface heights along with track and wheel gauges.

2. For body mounting the #830 coupler assembly the distance required from the top of the rail to the car underbody (mounting surface) is 1.300" (approx. 1 19/64"). Place the car without a coupler on the track and (with the track power off) place the height gauge on the track with the pointed end towards the car. Roll the car up to the gauge, the coupler mounting surface on the car should just clear the top of the height gauge. Achieving this mounting height may require the building of a level platform or modifying the mounting area so the coupler will be level and at the correct height.



**Fig. 6**

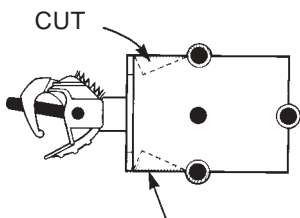


**Fig. 7**

3. If the coupler mounting surface is too high use plastic shim stock to shim down to the to the correct height ( Fig.6), thus building a level mounting platform. If the mounting area is too low first try to raise the body by placing thin shims or washers between the truck and underframe. You can remove the gear box lid and trim off the side and end posts and mount the box and coupler directly on the platform. The last resort is to remove material from the mounting area by filing or cutting into the underframe. If this is necessary be sure that the finished surface is smooth and level and if you go too deep you can still use shims to bring it back down to the proper height.

4. In most body mounting situations the coupler mounting screws will protrude through the platform and underframe and be exposed on the upper surface. If your car has open framework, like a hopper or tank car, or it's a flat car or gondola with an exposed floor, generally you can trim off the protruding screw end and touch up the tip with matching paint. If the mounting platform is thick enough (.060" or thicker) to hold screw threads without the hole going through the top of the car surface you might be able to drill and tap the shim platform before you attach it to the car then use screws of an appropriate length. Temporarily mount shims, then set gear box assembly in place and mark location of mounting holes on shims. Although not necessary, it is easier to use the two centerline holes in the gear box. Remove shims and drill & tap for 2-56 screws (use our #246 2-56 Tap and Drill Set) in the marked locations. Securing the shims depends on the material of the underframe. Use a liquid styrene cement for a styrene to styrene connection or use a CA type of glue for other material. Also, if the thickness of the underframe allows you can drill the screw holes only part of the way into the underframe and use the screws to help secure the platform.

NOTE: When using metal screws in plastic, tapping of the hole may not be required. After drilling a 5/64" (#50 drill) hole, the screw usually will self-tap. An alternative is to drill 7/64" (#43 drill) holes through and use the 2-56 screws and hex nuts to secure the gear box. The metal screws can be cut to the required length with a fine saw. Before cutting, screw on a supplied hex nut past the place to be cut. After cutting, removing the nut will clean up and straighten the threads.



**Fig. 8**

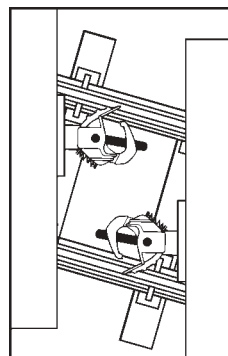
CUT OFF SHADED AREAS FOR SPECIAL ALTERATIONS

5. Mounting on some cars may require alterations to the draft gear box for proper clearance since the wheels on some 4 axle trucks may not clear the coupler gear boxes on tight curves. You can notch out the sides of the gear box for enough wheel clearance on most cars. Fig.8 shows a typical example. The location of the notches will depend where the wheels come in contact with the sides of the box. Turn car over and place coupler assembly in position directly on the car centerline. Hold it in position and turn the trucks back and forth to check if extra wheel clearance is needed. If so, mark the sides of the box where the wheels touch. Disassemble the coupler and notch out the marked area on the box only, the lid may not need notching. Usually you'll need to cut the draw bar off of the truck. On some cars with enough underframe clearance you can turn the truck around 180° so the coupler drawbar points toward the center of the car.

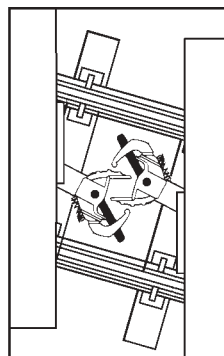
6. It is not recommended to glue the gearbox in place, but it still can be done "only as a last resort" if you determine that using screws to mount the gearbox is not possible. This will limit the strength of the mounting to short or light trains. This will also be a permanent mounting so be sure the coupler functions properly and the coupler height is correct "BEFORE" you glue it in place. Use a liquid styrene cement to secure the lid to the box, just let a very small amount "wick" along the seams then hold tightly until it sets. Make sure you position the coupler correctly and if the surface is styrene use a styrene cement to secure the box to the platform. Or if the surface is another material use a CA glue.

**COUPLER SWING**

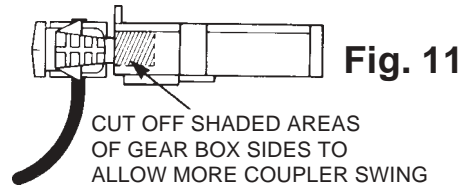
Place two cars with body mounted couplers on an S-curve or your tightest turn out, as shown in Fig.9, so the couplers are as far apart as possible. Keep the cars in position and swing the couplers together with your fingers, they should move enough to engage in the delayed position as in Fig.10. If not, remove coupler gear box and disassemble it, cut out the gear box sides to allow a little more coupler swing as shown in Fig.11, file smooth any rough spots that remain.



**Fig. 9**



**Fig. 10**



**Fig. 11**

**OPERATION**

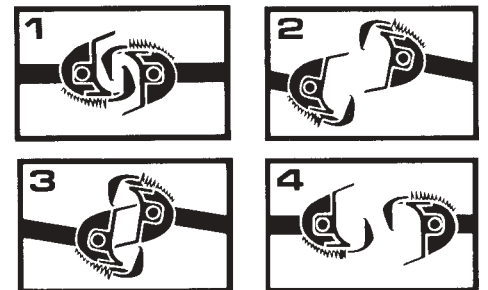
When installed and mounted correctly Kadee® "G" scale Magne-Matic® coupler system is a complete "hands off" operational coupler system. Each coupler has a wire or "trip pin" extending down from its knuckle towards the track and the magnetic force of the uncouplers pulls the two trip pins in opposite directions and opens the couplers.

**TO COUPLE:** Simply push cars together and the operating knuckles will move each other to opposite sides and when the lips of the knuckles bypass each other they will close in a coupled position.

**TO UNCOUPLE:** Stop with the couplers over an uncoupler (magnet) and, if needed, back up slightly to create slack between the couplers. As you pull forward the couplers will open completely and as long as the couplers are over the magnet they will remain in the open or "delayed" position.

When the couplers are set in the delayed position you can push them together without recoupling. Now you can push (spot or drop) the uncoupled car(s) just about anywhere on your layout. As long as there is continuous pressure against the couplers they will not recouple. When you have pushed the car(s) to the desired location stop and pull away. This will release the couplers from the delayed position after which they will snap back to the centered position and again be ready for coupling.

With one or more uncouplers in strategic locations on your layout you can conduct major switching operations utilizing the delayed action uncoupling and have unlimited possibilities for realistic operation of your railroad. As you can see, "delayed action" Kadee® couplers work even better than the prototype because they work automatically.



Use Kadee® #840, #842 and #844 large scale magnetic uncouplers and these all mount between the rails. The #840 uncoupler comes already mounted in a section of LGB™ track. The #842 is designed to be mounted permanently and requires cutting the ties down so it can be mounted at the correct height. The #844 is a portable uncoupler that requires no cutting and will fit into the most popular makes of track.

If other kinds of magnets are substituted for the Kadee® magnetic uncouplers, we cannot guarantee the satisfactory operation of our couplers.



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